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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,137	09/26/2003	Robert A. Kruger	OPTO/11	6106
26875 7590 11/04/2008 WOOD, HERRON & EVANS, LLP 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202				
EXAMINER RAMIREZ, JOHN FERNANDO				
ART UNIT		PAPER NUMBER		
3737				
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11/04/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/672,137

Applicant(s)

KRUGER, ROBERT A.

Examiner

JOHN F. RAMIREZ

Art Unit

3737

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 10 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Applicant alleges on page 7 of the remarks that the Wang patent does not describe the use of an unfocused transducer with backprojection methods to capture thermoacoustic images.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., unfocused) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US 6,567,688) in view of Kuhn et al. (US 5,339,282).

With respect to claims **1-11, 14, 16, 18 and 21**, Wang discloses a thermoacoustic tomography (TACT) imaging system for imaging structures of tissue (abstract), comprising: a detector transducer array (see figure 2, element 26,); an acoustic receiver coupled to the detector array for receiving acoustic signals generated in response to radiant energy delivered to the tissue (see abstract, col.6, lines 23-36) and detected by the detector array ; an ultrasound receiver coupled to the detector array for receiving echoes from an ultrasonic beam delivered into the tissue (col. 15, lines 7-21, fig. 9); and an ultrasound beam coupled to the detector array for causing the array to generate the ultrasonic beam (col. 15, lines 7-21, fig. 9).

With respect to claims **12-13, 15, 17, 19-20 and 22**, Wang does not disclose specifically that the microwave-induced thermoacoustic system has a receiver and a beam steering circuit coupled to and controlled by an ultrasound imaging system and the images are presented on display overlaid in spatial registration or in comparison with each other. However, Wang discloses an alternative system that can be used to obtain ultrasonogram images and thermoacoustic images sequentially (see col. 14, lines 65-67, col. 15 lines 1-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a receiver and a beam steering circuit coupled to and controlled by an ultrasound system and to simultaneously displaying both images in order to enhance diagnostic information available to the physician.

With respect to claims **10 and 16**, applicant's alleges that the Wang does not suggest to combine backprojection with beam-steering on an imaging system. However in the same field of endeavor, Kuhn et al. discloses a system that uses a synthetic

focusing approach to improve imaging results (see abstract). Kuhn et al. discloses that the synthetic focusing algorithm also can make use of the phased array technique. The synthetic focusing reconstructions were also based on the straight line path approximation as are most of the beam-steering methods developed to date (see col. 1, lines 40-63). Kuhn describes the use of backprojection and beam-steering for reconstruction of 1D and 2D images (see figs. 1 and 2; see col. 9, line 51- col. 10, line 66). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a backprojection method with beam-steering on an imaging system in order to minimize the image distortions caused by imperfections in the beam-steering.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN F. RAMIREZ whose telephone number is (571)272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/
Supervisory Patent Examiner, Art
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/J. F. R./
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